

Claims

We claim:

1. A molded article comprising:
a substrate comprising a thermoplastic alloy including a polyester and a polycarbonate; and
a layer of a thermoplastic material disposed on at least a portion of the substrate, the thermoplastic material comprising a thermoplastic polyurethane.
2. The article of claim 1 wherein:
the thermoplastic material is a thermoplastic elastomer alloy including a styrenic thermoplastic elastomer and the thermoplastic polyurethane.
3. The article of claim 2 wherein:
the styrenic thermoplastic elastomer is a styrenic block copolymer.
4. The article of claim 3 wherein:
the styrenic block copolymer is selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers.
5. The article of claim 3 wherein:
the styrenic block copolymer is selected from styrene-ethylene/butylene-styrene copolymers.
6. The article of claim 2 wherein:

the thermoplastic elastomer alloy consists essentially of a styrenic thermoplastic elastomer and a thermoplastic polyurethane.

7. The article of claim 2 wherein:

the thermoplastic elastomer alloy consists essentially of (i) a styrenic block copolymer selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers, and (ii) a thermoplastic polyurethane.

8. The article of claim 2 wherein:

the thermoplastic elastomer alloy consists essentially of (i) a styrene-ethylene/butylene-styrene copolymer, and (ii) a thermoplastic polyurethane.

9. The article of claim 1 wherein:

the polyester is the reaction product of a polyhydric alcohol and a polycarboxylic acid.

10. The article of claim 1 wherein:

the polyester is the reaction product of an alkanediol and terephthalic acid.

11. The article of claim 1 wherein:

the polyester is selected from polyethylene terephthalate and polybutylene terephthalate.

12. The article of claim 1 wherein:

the polyester is polybutylene terephthalate.

13. The article of claim 1 wherein:

the polycarbonate is a bisphenol-A polycarbonate.

14. The article of claim 1 wherein:

the polycarbonate is the reaction product of bisphenol-A and diphenyl carbonate.

15. The article of claim 1 wherein:

the thermoplastic alloy comprises polybutylene terephthalate and a bisphenol-A polycarbonate.

16. The article of claim 1 wherein:

the thermoplastic alloy consists essentially of a polyester and a polycarbonate.

17. The article of claim 1 wherein:

the thermoplastic alloy consists essentially of polybutylene terephthalate and a bisphenol-A polycarbonate.

18. The article of claim 1 wherein:

the layer of the thermoplastic elastomer alloy has a hardness in the range of 40-70 Shore A.

19. The article of claim 1 wherein:

the substrate has a higher hardness than the layer.

20. A method of manufacturing an article, the method comprising:
providing a substrate comprising a thermoplastic alloy including a polyester and a polycarbonate; and
overmolding a layer of a thermoplastic material comprising a thermoplastic polyurethane.

21. The method of claim 20 wherein:
the thermoplastic material is a thermoplastic elastomer alloy including a styrenic thermoplastic elastomer and the thermoplastic polyurethane.

22. The method of claim 21 wherein:
the styrenic thermoplastic elastomer is a styrenic block copolymer.

23. The method of claim 21 wherein:
the styrenic block copolymer is selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers.

24. The method of claim 21 wherein:
the styrenic block copolymer is selected from styrene-ethylene/butylene-styrene copolymers.

25. The method of claim 20 wherein:
the polyester is the reaction product of a polyhydric alcohol and a polycarboxylic acid.

26. The method of claim 20 wherein:
the polyester is the reaction product of an alkanediol and terephthalic acid.
27. The method of claim 20 wherein:
the polyester is selected from polyethylene terephthalate and polybutylene terephthalate.
28. The method of claim 20 wherein:
the polyester is polybutylene terephthalate.
29. The method of claim 20 wherein:
the polycarbonate is a bisphenol-A polycarbonate.
30. The method of claim 20 wherein:
the polycarbonate is the reaction product of bisphenol-A and diphenyl carbonate.
31. The method of claim 20 wherein:
the thermoplastic alloy comprises polybutylene terephthalate and a bisphenol-A polycarbonate.
32. The method of claim 20 wherein:
the layer of the thermoplastic elastomer alloy has a hardness in the range of 40-70 Shore A.
33. The method of claim 20 wherein:

the styrenic block copolymer is selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers, the polyester is polybutylene terephthalate, and the polycarbonate is a bisphenol-A polycarbonate.

34. The method of claim 20 wherein:
the substrate has a higher hardness than the layer.

35. A modular chain link for use in constructing a modular conveyor chain, the modular chain link comprising:

a main body comprising a thermoplastic alloy including a polyester and a polycarbonate;

a layer of a thermoplastic material disposed on at least a portion of the main body, the thermoplastic material comprising a thermoplastic polyurethane; and

a plurality of spaced link ends projecting from opposite sides of the main body, the plurality of spaced link ends being adapted to couple with adjacent links for joining the modular chain link together with the adjacent links.

36. The modular chain link of claim 35 wherein:

the thermoplastic material is a thermoplastic elastomer alloy including a styrenic thermoplastic elastomer and the thermoplastic polyurethane.

37. The modular chain link of claim 36 wherein:

the styrenic thermoplastic elastomer is a styrenic block copolymer.

38. The modular chain link of claim 36 wherein:

the styrenic block copolymer is selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers.

39. The modular chain link of claim 36 wherein:

the styrenic block copolymer is selected from styrene-ethylene/butylene-styrene copolymers.

40. The modular chain link of claim 36 wherein:

the thermoplastic elastomer alloy consists essentially of a styrenic thermoplastic elastomer and a thermoplastic polyurethane.

41. The modular chain link of claim 36 wherein:

the thermoplastic elastomer alloy consists essentially of (i) a styrenic block copolymer selected from the group consisting of styrene-butadiene-styrene copolymers, styrene-isoprene-styrene copolymers, styrene-ethylene/butylene-styrene copolymers, and styrene-ethylene/propylene-styrene copolymers, and (ii) a thermoplastic polyurethane.

42. The modular chain link of claim 36 wherein:

the thermoplastic elastomer alloy consists essentially of (i) a styrene-ethylene/butylene-styrene copolymer, and (ii) a thermoplastic polyurethane.

43. The modular chain link of claim 35 wherein:

the polyester is the reaction product of a polyhydric alcohol and a polycarboxylic acid.

44. The modular chain link of claim 35 wherein:

the polyester is the reaction product of an alkanediol and terephthalic acid.

45. The modular chain link of claim 35 wherein:

the polyester is selected from polyethylene terephthalate and polybutylene terephthalate.

46. The modular chain link of claim 35 wherein:
the polyester is polybutylene terephthalate.
47. The modular chain link of claim 35 wherein:
the polycarbonate is bisphenol-A polycarbonate.
48. The modular chain link of claim 35 wherein:
the polycarbonate is the reaction product of bisphenol-A and diphenyl carbonate.
49. The modular chain link of claim 35 wherein:
the thermoplastic alloy comprises polybutylene terephthalate and a bisphenol-A polycarbonate.
50. The modular chain link of claim 35 wherein:
the thermoplastic alloy consists essentially of a polyester and a polycarbonate.
51. The modular chain link of claim 35 wherein:
the thermoplastic alloy consists essentially of polybutylene terephthalate and a bisphenol-A polycarbonate.
52. The modular chain link of claim 35 wherein:
the layer of the thermoplastic elastomer alloy has a hardness in the range of 40-70 Shore A.
53. The modular chain link of claim 35 wherein:
the body has a higher hardness than the layer.